

1. ALL CONDUITS ARE SHOWN DIAGRAMMATICALLY. EXACT RUNS SHALL BE DETERMINED IN FIELD EXCEPT WHERE SPECIFICALLY DIMENSIONED ON CONDUIT LAYOUTS. CONTRACTOR SHALL FOLLOW MINIMUM SPACING REQUIREMENTS TO REDUCE ELECTROMAGNETIC INTERFERENCE. COORDINATE CONDUIT ROUTING WITH ALL OTHER TRADES.
2. ALL EXPOSED CONDUIT SHALL BE RUN PARALLEL TO BUILDING WALLS AND BEAMS EXCEPT WHERE OTHERWISE SHOWN. CONTRACTOR SHALL INSTALL CONDUIT IN SUCH A MANNER TO AVOID ALL INTERFERENCES.
3. DEFLECTION/EXPANSION FITTINGS SHALL BE PROVIDED WHERE RIGID METAL CONDUIT CROSSES STRUCTURAL EXPANSION JOINTS.
4. EXPOSED CONDUIT SHALL BE SUPPORTED ON WALLS OR CEILINGS BY APPROVED HANGERS OF ANY OR CHANNEL CONSTRUCTION. CONDUITS SHALL BE SUPPORTED AT LEAST EVERY EIGHT (8) FEET.
5. ALL SPARE CONDUITS SHALL BE TERMINATED AS SHOWN ON CONDUIT LAYOUTS AND SHALL BE CAPPED 3" ABOVE FINISHED FLOOR.
6. NO CONDUIT SHALL BE SMALLER THAN 3/4" UNLESS NOTED OTHERWISE ON PLANS.
7. THE NUMBER OF WIRES SHOWN ON THE DRAWINGS IS NOT NECESSARILY THE CORRECT NUMBER REQUIRED. THE CONTRACTOR SHALL INSTALL AS MANY AS ARE NECESSARY FOR PROVIDING A COMPLETE ELECTRICAL SYSTEM IN EACH CASE.
8. EQUIPMENT FURNISHED BY OTHERS SHALL BE INSTALLED & ENERGIZED BY THE ELECTRICAL CONTRACTOR.
9. THE ELECTRICAL CONTRACTOR SHALL NOT ENDANGER THE STABILITY OF THE STRUCTURE OR ANY PART THEREOF BY CUTTING, DRILLING OR OTHERWISE, AND SHALL NOT IN ANY WAY CUT OR ALTER THE WORK OF ANY OTHER CONTRACTOR, EXCEPT WITH THE WRITTEN CONSENT OF AND UNDER THE DIRECTION OF THE ENGINEER AND/OR GENERAL CONTRACTOR.
10. THE ELECTRICAL CONTRACTOR SHALL SECURE ALL APPROVALS AND CERTIFICATES AND PAY ALL FEES FOR ALL THE WORK INSTALLED. CERTIFICATES SHALL BE DELIVERED TO THE GENERAL CONTRACTOR BEFORE FINAL PAYMENT WILL BE MADE.
11. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST APPLICABLE VERSION OF THE NEC AS WELL AS ALL STATE AND LOCAL CODES.
12. THE DRAWINGS INDICATE AND THE SPECIFICATIONS DESCRIBE THE GENERAL ARRANGEMENTS AND LOCATION OF OUTLET BOXES, ETC. THE CONTRACTOR SHALL, WITHOUT EXTRA COST TO THE OWNER, MAKE ALL REASONABLE MODIFICATIONS IN THE WORK AS MAY BE REQUIRED TO PREVENT CONFLICT WITH EXISTING CONDITIONS, THE WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF THE WORK.
13. PRIOR TO SUBMISSION OF BID PROPOSAL, THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE CAREFULLY THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL BE INCURRED DURING THE PERFORMANCE OF HIS WORK.
 - A. VERIFY & COORDINATE CONDUIT ROUTING.
 - B. VERIFY & COORDINATE SCOPE OF DEMOLITION WORK.
 - C. VERIFY & COORDINATE SCOPE OF WORK INVOLVING CONNECTIONS TO EXISTING BASE BUILDING SYSTEMS.
 - D. VERIFY SCOPE OF WORK THAT HAS TO BE DONE WITH EXISTING FIRE ALARM SYSTEM AS REQUIRED TO ACCOMMODATE ALL ADDED DEVICES.
 - E. VERIFY WITH GENERAL CONTRACTOR SCOPE OF WORK ASSOCIATED WITH RIGGING OF EQUIPMENT TO BE PREPURCHASED.
 - F. COORDINATE WITH THE BUILDING ENGINEER AND GENERAL CONTRACTOR SHUT DOWNS OF EXISTING FACILITIES.
14. ARRANGE FOR SITE VISIT WITH THE BLDG. OWNER REPRESENTATIVE AND GENERAL CONTRACTOR.
15. CLAIMS FOR ADDITIONAL COMPENSATION ARISING DUE TO THE FAILURE OF THE CONTRACTOR TO FULLY UNDERSTAND THE SITE CONDITIONS SHALL NOT BE PAID FOR BY ANY OTHER PARTY.
16. CONNECTIONS TO EXISTING WORK:
 - A. INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES.
 - B. TEMPORARY SHUTDOWNS OF EXISTING SERVICES:
 - a. AT NO ADDITIONAL CHARGES.
 - b. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING SERVICES.
 - c. ONLY WITH WRITTEN CONSENT OF THE GENERAL CONTRACTOR AND/OR BUILDING OWNERS REPRESENTATIVE.
 - C. ALARM AND EMERGENCY SYSTEMS: ALARMS NEED TO BE TAKEN OFFLINE ON A DAILY BASIS WHILE WORK IS COMPLETED. CONTRACTOR SHALL CONTACT SECURITY WHEN AN ALARM IS TO BE TURNED OFF AND AT THE END OF THE DAY WHEN WORK IS COMPLETED.
 - D. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK.
 - E. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
 - F. PRIOR TO DEMOLITION OF AN EXISTING POWER PANEL, THE CONTRACTOR SHALL SEARCH OUT ALL EXISTING CIRCUITS FED FROM THE PANEL TO PREVENT ANY ACCIDENTAL SERVICE INTERRUPTIONS.
17. LEAVE WIRE SUFFICIENTLY LONG TO PERMIT MAKING FINAL CONNECTIONS. CONDUIT OVER 10 FEET IN WHICH WIRING IS NOT INSTALLED--FURNISH PULL STRING.
18. DO NOT PULL THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F (0 DEG C). PROVIDE CABLE SUPPORTS FOR WIRE IN RISER CONDUITS AS REQUIRED BY CODE.
19. JUNCTION & PULL BOXES: DO NOT LOCATE EXPPOSED IN FINISH SPACES UNLESS REQUIRED BY NEC. WHERE NECESSARY, REROUT CONDUIT OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. PROVIDE PULL BOXES AS INDICATED AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE AND COORDINATE LOCATIONS WITH OTHER TRADES. COVERS OF JUNCTION AND PULL BOXES SHALL BE ACCESSIBLE. FOR EMPTY CONDUITS, INSTALL PULL BOXES EVERY 100 FEET AND AS INDICATED. COORDINATE LOCATIONS WITH OTHER TRADES.
20. SUPPORT PANEL, JUNCTION & PULL BOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON CONDUIT.
21. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ENGINEER PRIOR TO INSTALLATION.

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1. COORDINATE WITH DEMOLITION PLANS FOR CATCH AREAS TO BE DEMOLISHED.
2. DISCONNECT AND REMOVE ALL DEVICES, FIXTURES, DATA/TEL. OUTLETS, POWER CONNECTIONS TO HVAC EQUIPMENT AND DISCONNECT SWITCHES, CONDUIT & WIRING FROM ALL WALLS/CEILING/BEING REMOVED, WITHIN THIS AREA BACK TO POWER PANEL OF ORIGIN.
3. ALL EXISTING DEVICES SCHEDULED TO REMAIN SHALL BE EXTENDED/RE-CIRCUITED AS REQUIRED TO MAINTAIN CONTINUITY OF CIRCUIT/DEVICES.
4. REMOVALS SHALL INCLUDE, BUT NOT BE LIMITED TO DEVICES, FIXTURES, FIRE ALARM DEVICES, DATA/TEL. OUTLETS, POWER CONNECTIONS TO HVAC EQUIPMENT AND DISCONNECT SWITCHES, CONDUIT & WIRING.
5. ELECTRICAL CONTRACTOR TO PROVIDE ALL NECESSARY TEMPORARY WORK AND/OR MATERIALS TO RENDER EXISTING SYSTEM OPERATIONAL DURING ALL PHASES OF CONSTRUCTION IN ALL OCCUPIED SPACES. THIS SHALL BUT NOT LIMITED TO POWER, DATA, LIGHTING, EMERGENCY COMPONENTS & ALARMS. COORDINATE WITH ALL TRADES, OWNER AND OVERALL CONSTRUCTION PHASING SCHEDULE.

1. COORDINATE WITH DEMOLITION PLANS FOR EXACT AREAS TO BE DEMOLISHED.
2. REMOVE ALL EQUIPMENT, DUCTWORK AND PIPING AS INDICATED ON PLAN. REMOVALS SHALL INCLUDE ALL SUPPORTS AND HANGERS, HOUSEKEEPING PADS, DAMPERS, VALVES, FITTINGS, CONTROLS AND ASSOCIATED LOW VOLTAGE WIRING, AND ANY OTHER ASSOCIATED ACCESSORIES WHICH PERTAIN TO THE EQUIPMENT TO BE REMOVED.
3. REMOVAL OF ALL POWER CONNECTIONS TO DEMOLITION ITEMS SHALL BE BY THE E.C.
4. ANY DISCREPANCIES BETWEEN THE DEMOLITION PLANS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. ANY DEMOLITION WORK WHICH MAY BE QUESTIONABLE DUE TO UNFORESEEN FIELD CONDITIONS SHALL NOT BE REMOVED UNTIL REVIEWED BY THE ENGINEER OR BUILDING FACILITIES MANAGER.
5. DEMOLITION WORK SHALL INCLUDE THE PREPARATION OF EXISTING EQUIPMENT FOR CONVERSION TO NEW EQUIPMENT. COORDINATE DEMOLITION WORK WITH THE CONSTRUCTION PLANS.
6. ALL EQUIPMENT REMOVALS SHALL BECOME THE PROPERTY OF THIS CONTRACTOR. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER REMOVAL AND DISPOSAL OF DEMOLITION ITEMS OFF-SITE, UNLESS OTHERWISE NOTED.
7. ALL CUTTING AND PATCHING NECESSARY FOR THE DEMOLITION WORK SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR.
8. IT SHALL BE THE OWNER'S RESPONSIBILITY TO REMOVE ANY LOOSE EQUIPMENT, FURNITURE, SUPPLIES, ETC. THAT MAY BE LOCATED IN THE AREA OF WORK.
9. THE PLANS ARE INTENDED TO CONVEY THE EXTENT AND SCOPE OF THE DEMOLITION WORK. EVERY ITEM INTENDED FOR REMOVAL MAY NOT BE SHOWN. THE CONTRACTOR IS ADVISED TO SURVEY THE PROJECT SITE BEFORE SUBMITTING A BID FOR DEMOLITION WORK.

1. THE DRAWINGS ON THESE PLANS ARE DIAGRAMMATIC. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL HVAC WORK WITH OTHER TRADES AND THE BUILDING STRUCTURE. NO EXTRA PAYMENTS WILL BE AUTHORIZED FOR REWORKING OR REMOVAL OF INSTALLED WORK DUE TO LACK OF COORDINATION WITH OTHER SYSTEMS.
2. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF WALLS, FLOORS AND CEILINGS AS REQUIRED FOR INSTALLATION OF HIS WORK.
3. ACCESS PANELS SHALL BE PROVIDED IN CEILINGS, WALLS, FLOORS, ETC., AS REQUIRED TO MAINTAIN ACCESSIBILITY TO VALVES, DAMPERS, TRAPS, COILS, ETC.
4. ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS SHALL BE SEALED TO FIRE AND SMOKE TIGHT WITH AN APPROPRIATE U.L. LISTED FIRESTOPPING MATERIAL AND OR SYSTEM.
5. ALL CHILLED WATER SUPPLY & RETURN PIPING SHALL BE INSULATED PER ENERGY CONSERVATION CONSTRUCTION CODE.
6. PROVIDE SHUT-OFF VALVES AT ALL PIPING BRANCH TAKE-OFFS AND AT ALL CONNECTIONS TO EQUIPMENT.
7. PROVIDE DRAINS WITH HOSE ADAPTERS AND CAPS ON PIPING AT ALL LOW POINTS. PROVIDE MANUAL VENTS ON PIPING AT ALL HIGH POINTS.
8. COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR.
9. ALL MOTOR STARTERS SHALL BE FURNISHED BY THE HVAC CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
10. ALL REQUIRED CONTROL EQUIPMENT AND WIRING SHALL BE FURNISHED & INSTALLED BY THE HVAC CONTRACTOR.
11. THE TERMS "PROVIDE" OR "FURNISH", AS USED ON THESE PLANS, INDICATE THAT THE CONTRACTOR IS TO FURNISH AND INSTALL THE REFERENCED EQUIPMENT OR SYSTEMS IN THEIR ENTIRETY AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
12. CONTRACTOR SHALL PROVIDE AND INSTALL ALL COMPONENTS INDICATED ON DETAIL SHEETS, PLANS, SPECIFICATIONS AND ALL PERTINENT EQUIPMENT REQUIRED FOR A COMPLETE AND WORKABLE SYSTEM.
13. CONTRACT CLOSE OUT: IN THE PRESENCE OF THE OWNER, ENGINEER, DEMONSTRATING OPERATION OF SYSTEMS AND THAT ALL SPECIFICATIONS HAVE BEEN MET TO THE SATISFACTION OF ALL PARTIES.

	DIRECTION OF FLOW
	ANCHOR
	PIPE GUIDE
	REDUCER OR INCREASER
	ECENTRIC REDUCER
	TOP CONNECTION, 45° OR 90°
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	CAPPED OUTLET
	PIPE DOWN TURN
	PIPE RISE
	UNION
	DIRECTION OF PIPE PITCH (DOWN)

	GATE VALVE -- THREADED/FLANGED
	GLOBE VALVE -- THREADED/FLANGED
	STRAINER
	FLEXIBLE CONNECTION
	BUTTERFLY VALVE
	BALL VALVE
	WATER FLOW MEASURING DEVICE
	TWO POSITION CONTROL VALVE
	THREE-WAY BY-PASS CONTROL VALVE

----- OF -----	EXISTING TO BE REMOVED
-----	EXISTING TO REMAIN
-----	NEW EQUIPMENT
----- CHWR	CHILLED WATER RETURN
----- CHWS	CHILLED WATER SUPPLY
----- CWR	CONDENSER WATER RETURN
----- CWS	CONDENSER WATER SUPPLY
----- G	NATURAL GAS LINE
----- HWR	HOT WATER RETURN
----- HWS	HOT WATER SUPPLY

	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
	POINT OF DISCONNECT
	INDICATES SECTION LETTER
	INDICATES DRAWING NUMBER WHERE LOCATED
	PUMP

 SPECIAL PURPOSE CONNECTION.

 3P, FUSED DISCONNECT SWITCH, FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. SHALL HAVE THE SAME # OF POLES & AMPERE RATING AS CONNECTING CIRCUIT UNLESS OTHERWISE NOTED.

 CONDUIT HOME RUN TO DESIGNATED PANEL. REFER TO PANEL SCHEDULE FOR CONDUIT & CABLE QUANTITY AND SIZE.

 DOUBLE HOME RUN

 TRIPLE HOME RUN

ACT	ACOUSTIC CEILING TILE	MAX.	MAXIMUM
AD	ACCESS DOOR	MBH	ONE THOUSAND BTUH
AFF	ABOVE FINISHED FLOOR	M.C.	MECHANICAL CONTRACTOR
AHU	AIR HANDLING UNIT	MCB	MAIN CIRCUIT BREAKER
AL	ALUMINUM	MCM	THOUSAND CIRCULAR MILS
AP	ACCESS PANEL	MD	MOTORIZED DAMPER
AUTO	AUTOMATIC	MDP	MAIN DISTRIBUTION PANEL
AWG	AMERICAN WIRE GAUGE	MECH	MECHANICAL
BCW	BARE COPPER WIRE	MER	MECHANICAL EQUIPMENT ROOM
BTUH	BRITISH THERMAL UNITS/HOUR	MIN.	MINIMUM
C	CONDUIT	MTD	MOUNTED
CHWR	CHILLED WATER RETURN	MTG	MOUNTING
CHWS	CHILLED WATER SUPPLY	NEC	NATIONAL ELECTRIC CODE
CKT	CIRCUIT	NTS	NOT TO SCALE
CLG	CEILING	NOM.	NOMINAL
CWS	CONDENSER WATER SUPPLY	N/C	NOT IN CONTRACT
CU	COPPER	NIC	NOT IN CONTRACT
D	DRAIN	NM	NON-METALLIC CONDUIT
Db	DRY BULB TEMPERATURE, °F	P	POLE
dB	DECIBELS	P	PUMP
DN	DOWN	PB	PULL BOX
DP	DISTRIBUTION PANEL	ø	PHASE
Dp	DEW POINT TEMPERATURE, °F	P.C.	PLUMBING CONTRACTOR
DS	DISCONNECT (LOCKOUT) SWITCH	PD	PRESSURE DROP (FEET OF WATER)
DWG	DRAWING	PWR	POWER
EA	EACH	PRV	PRESSURE REDUCING VALVE
E.C.	ELECTRICAL CONTRACTOR	PSI	POUNDS PER SQUARE IN.
ELEC.	ELECTRICAL	REQ.	REQUIRED
EQUIP.	EQUIPMENT	RGS	RIGID GALVANIZED STEEL
EMT	ELECTRICAL METALLIC TUBING	RPZ	REDUCED PRESSURE ZONE
EXP	EXPANSION TANK	RM	ROOM
EXIST	EXISTING	SCHED.	SCHEDULE
FC	FLEXIBLE CONNECTION	SECT.	SECTION
FL, FLR	FLOOR	Sp. Gr.	SPECIFIC GRAVITY
FLEX	FLEXIBLE	SPEC.	SPECIFICATION
FPC	FIRE PROTECTION CONTRACTOR	S.S.	STAINLESS STEEL
FT	FEET OR FOOT	SW	SWITCH
G	NATURAL GAS PIPE	SWBD	SWITCH BOARD
GND	GROUND	SYS	SYSTEM
GFI	GROUND FAULT INTERRUPTER	TYP	TYPICAL
G.C.	GENERAL CONTRACTOR	U.N.O.	UNLESS NOTED OTHERWISE
GPM	GALLONS PER MINUTE	V	VALVE
H.C.	HVAC CONTRACTOR	VFC	VARIABLE FREQUENCY CONTROLLER
HP	HORSEPOWER	VIF	VERIFY IN FIELD
HWR	HOT WATER RETURN	VI	VIBRATION ISOLATOR
HWS	HOT WATER SUPPLY	VSD	VARIABLE SPEED DRIVE
HZ	HERTZ	W	WATT
IMC	INTERMEDIATE METAL CONDUIT	Wb	WET BULB TEMPERATURE, °F
JB	JUNCTION BOX	WFM	WATER FLOW MEASURING DEVICE
KV	KILO VOLT	WP	WEATHER PROOF
KVA	KILO VOLT AMP	XFMR/	TRANSFORMER
KW	KILO WATT	TRANSF.	
LF	LINEAR FEET		
LBS/HR	POUNDS PER HOUR		

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